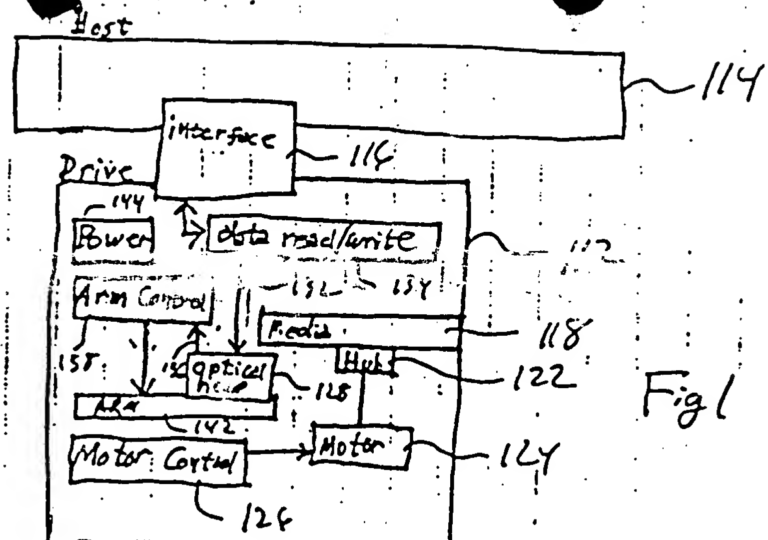


Fig 1

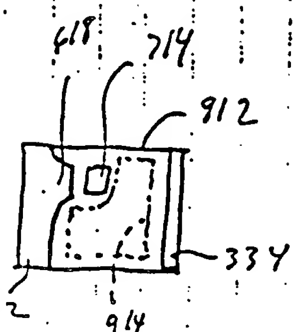


Fig 9

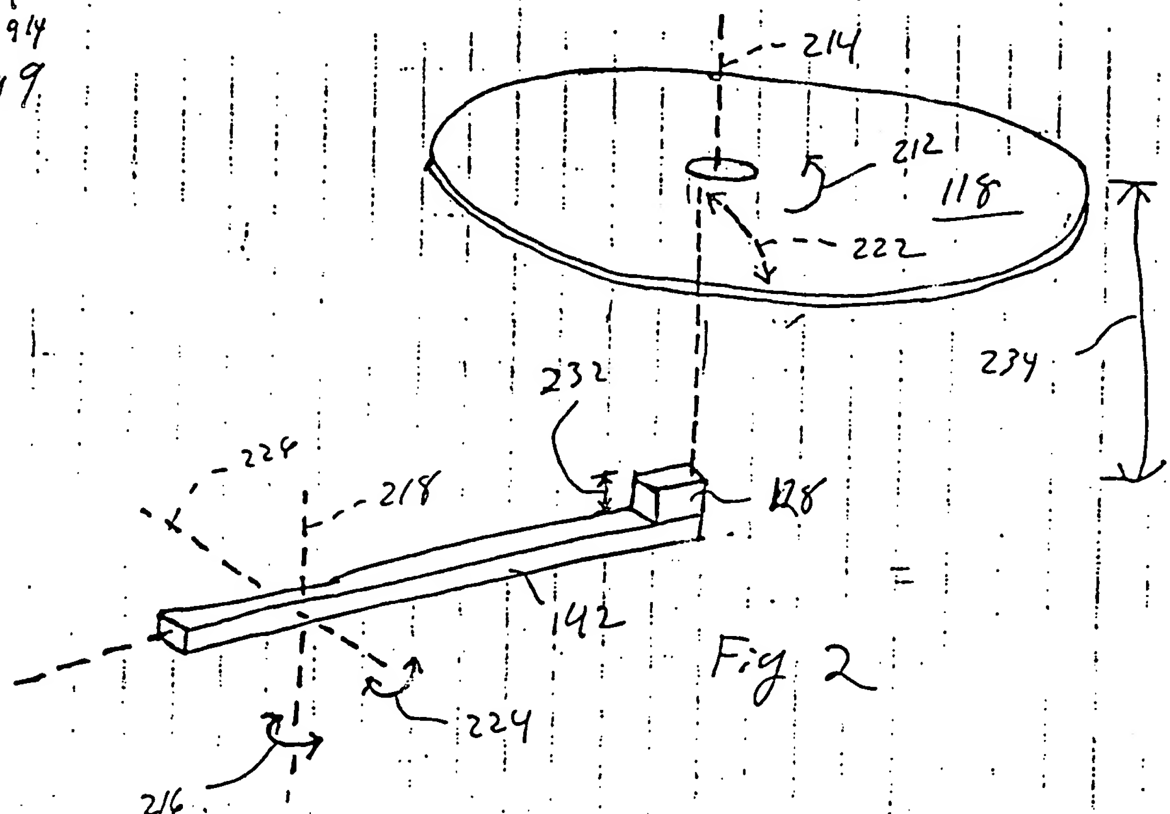


Fig 2

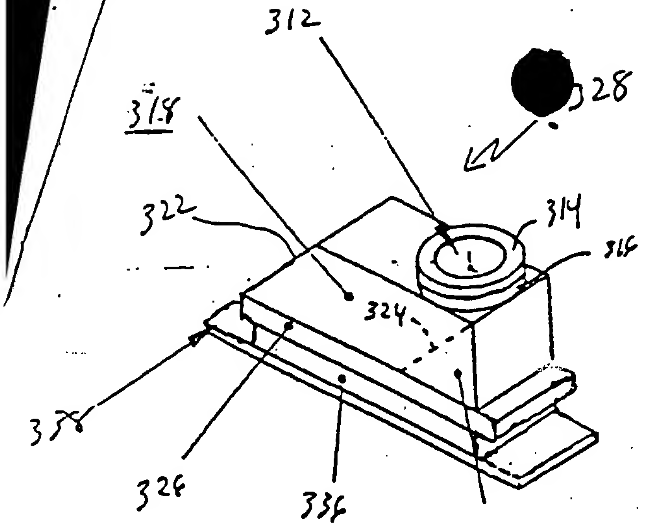
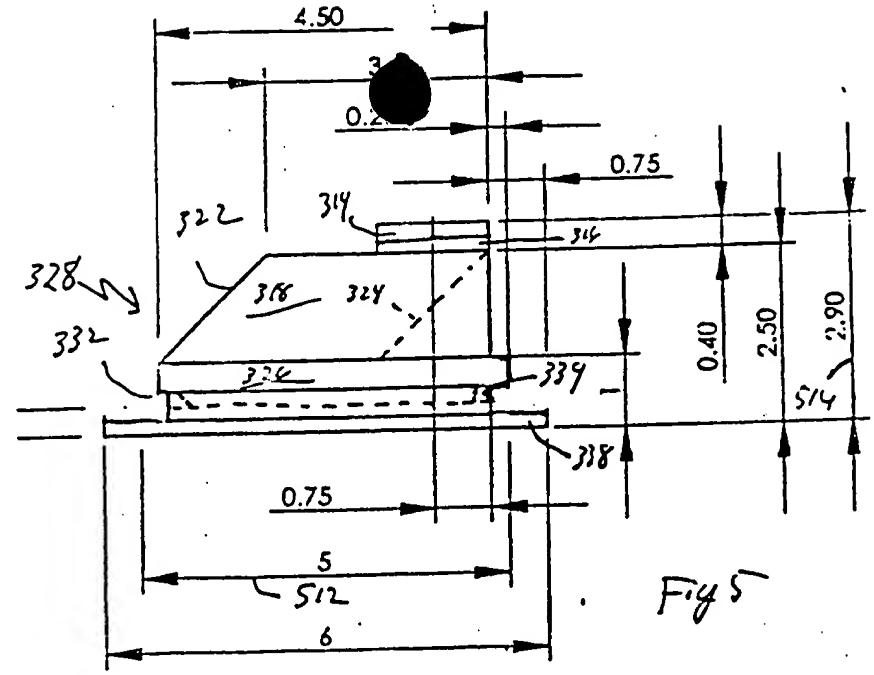


Fig 3



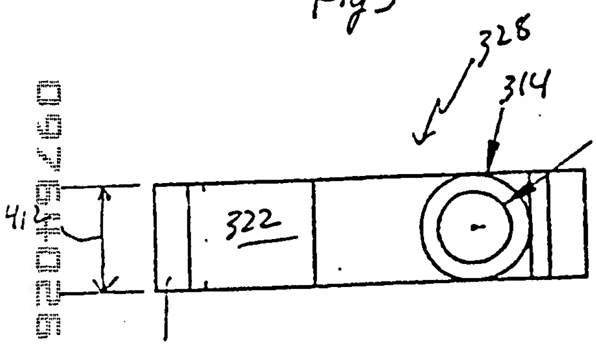
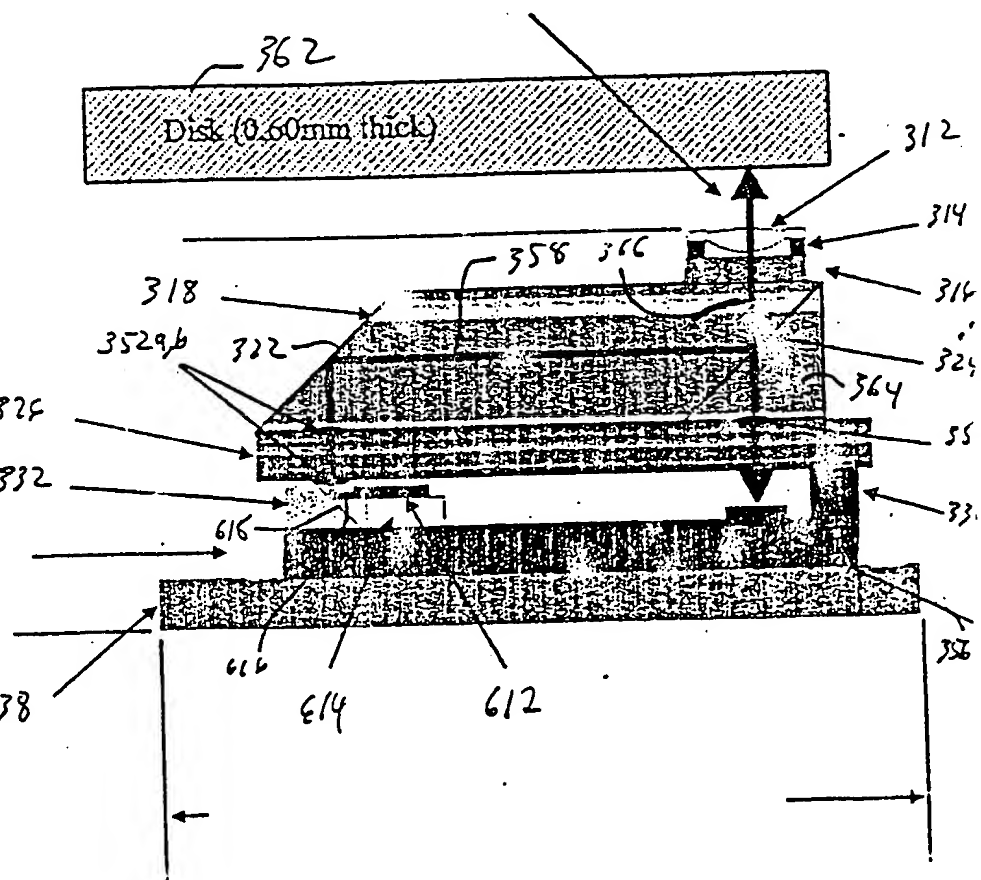
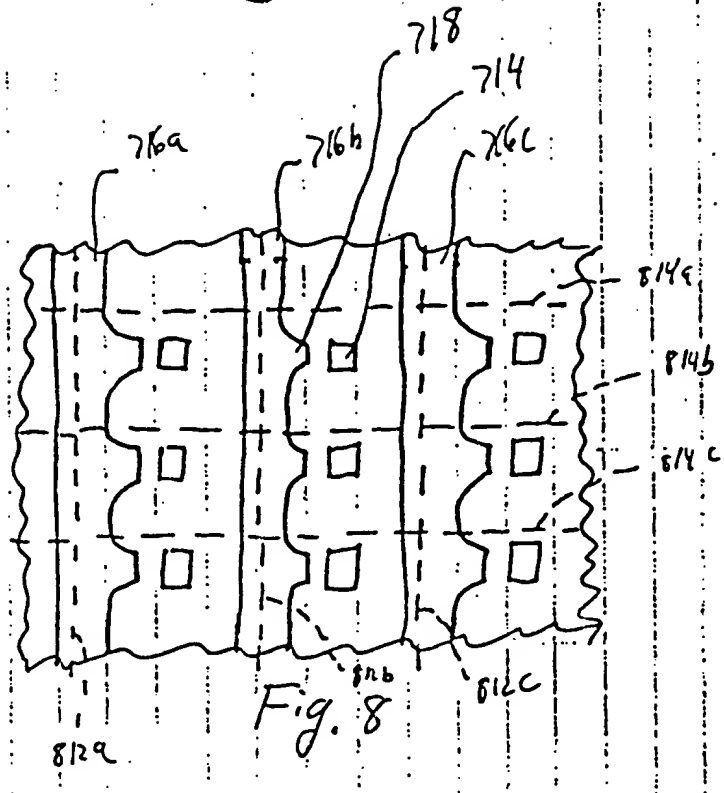


Fig 4

Fig 6




718
714
716a
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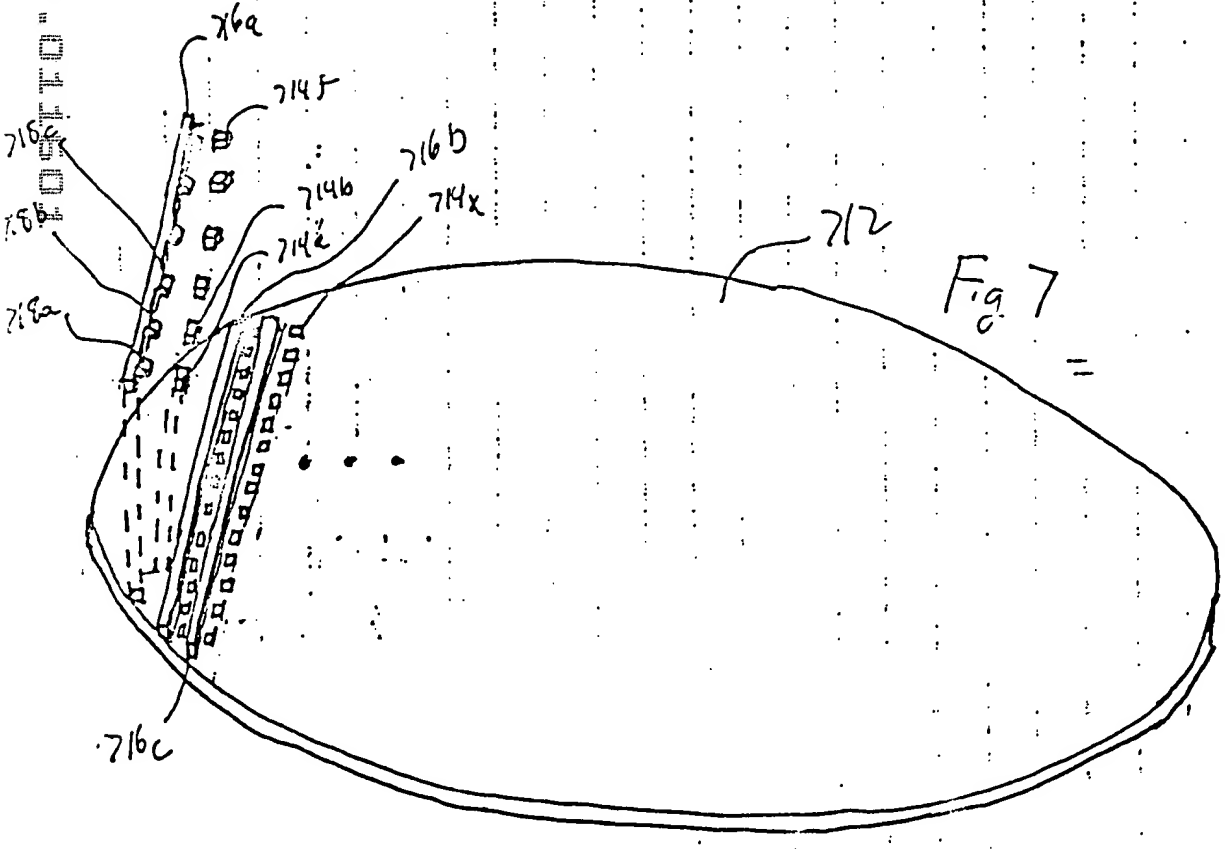
814a
812b
812c
812a

Fig. 8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716c
716b
714b
714x
714z
712
716a
716c

Fig 7

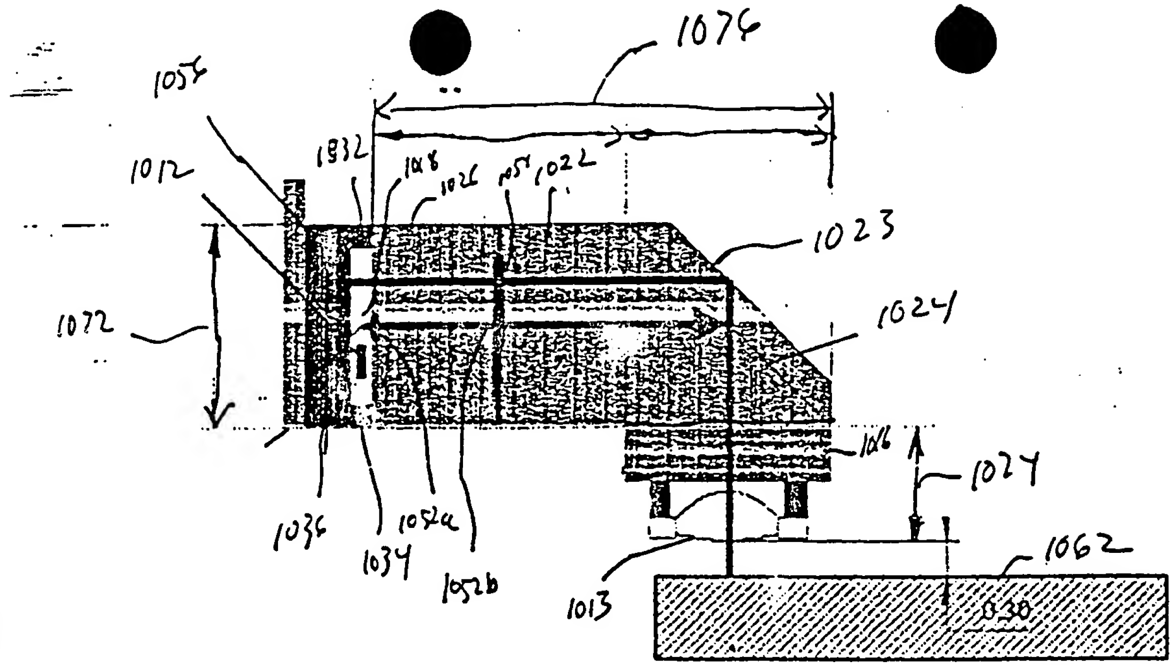


Fig 10

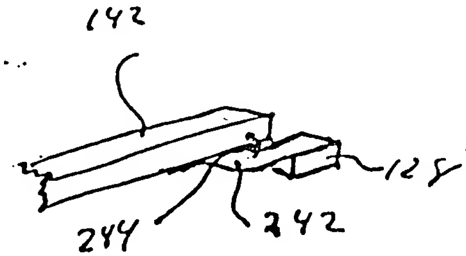


Fig ~~2B~~ 11

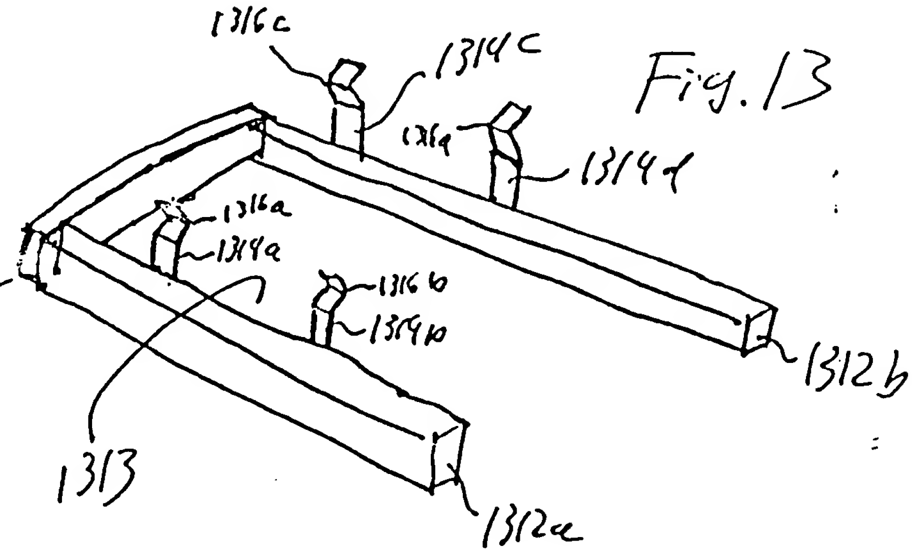
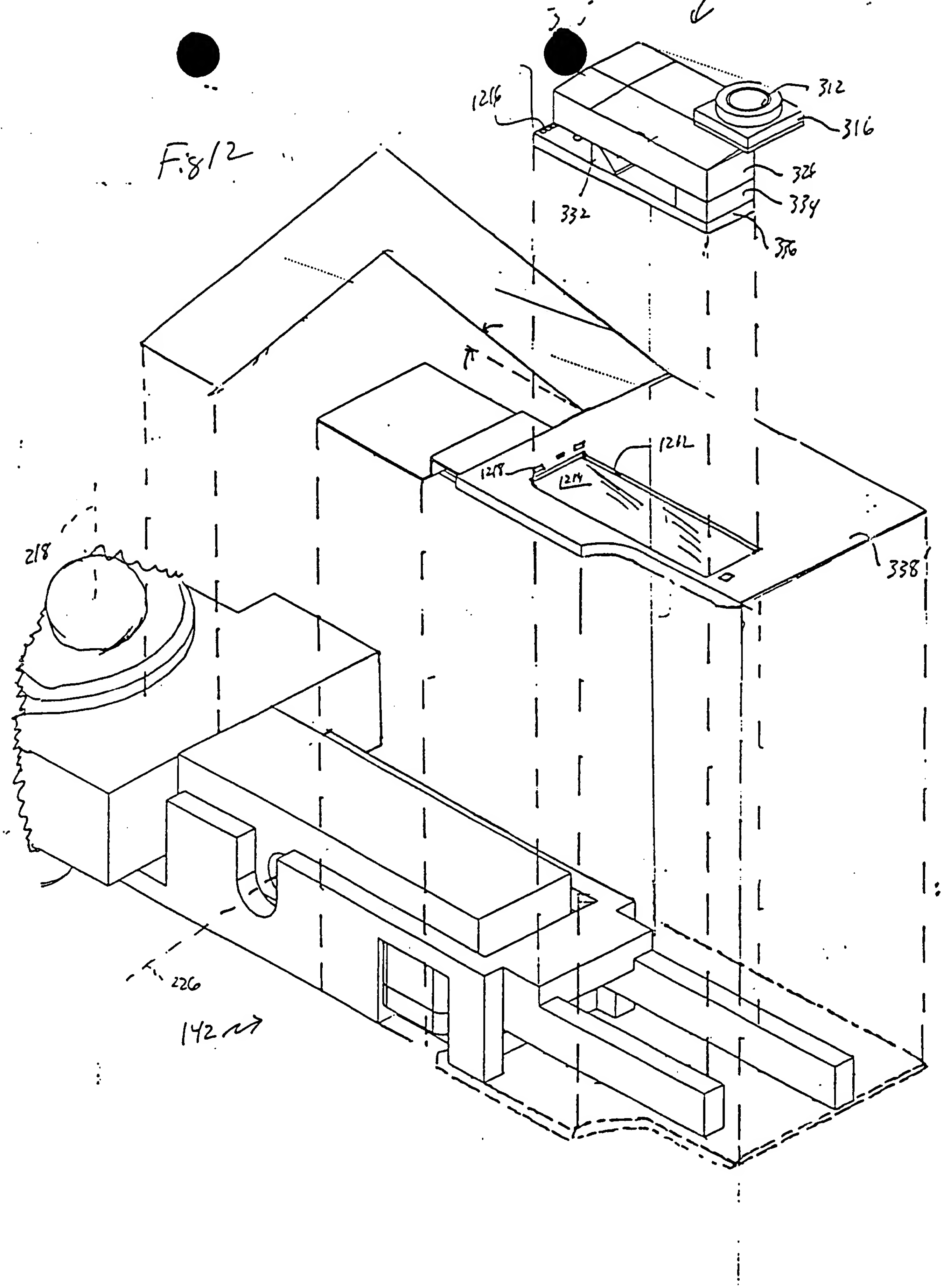
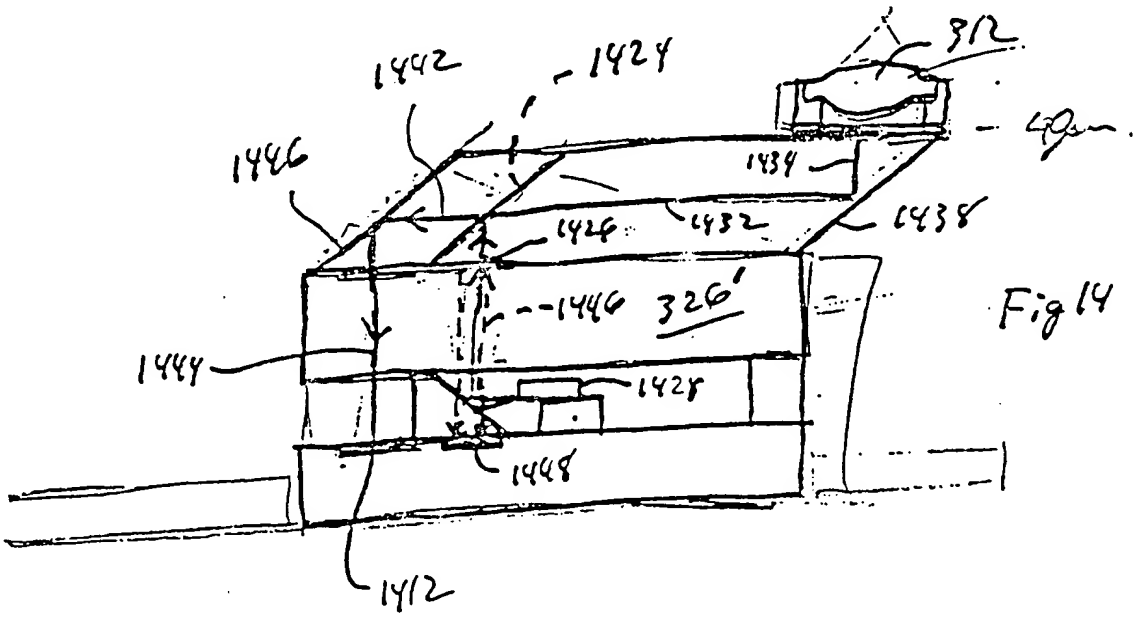


Fig. 13

Fig 12




1442
1424
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326'
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Fig 14

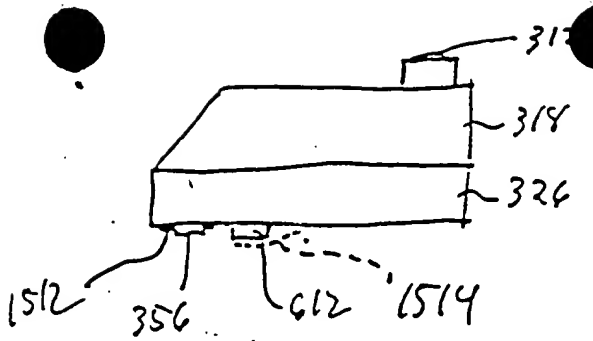


Fig. 15

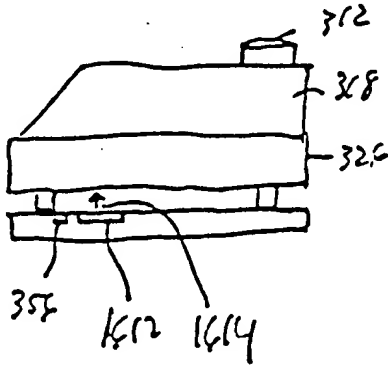


Fig 16

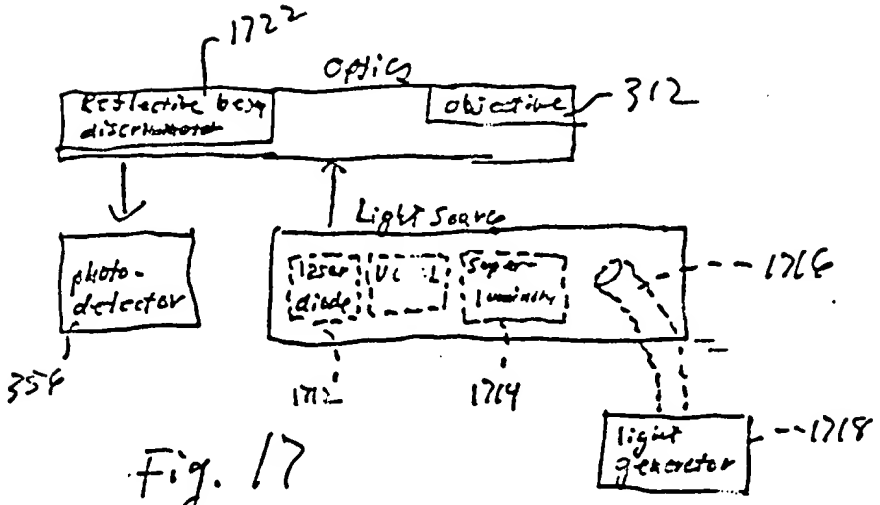
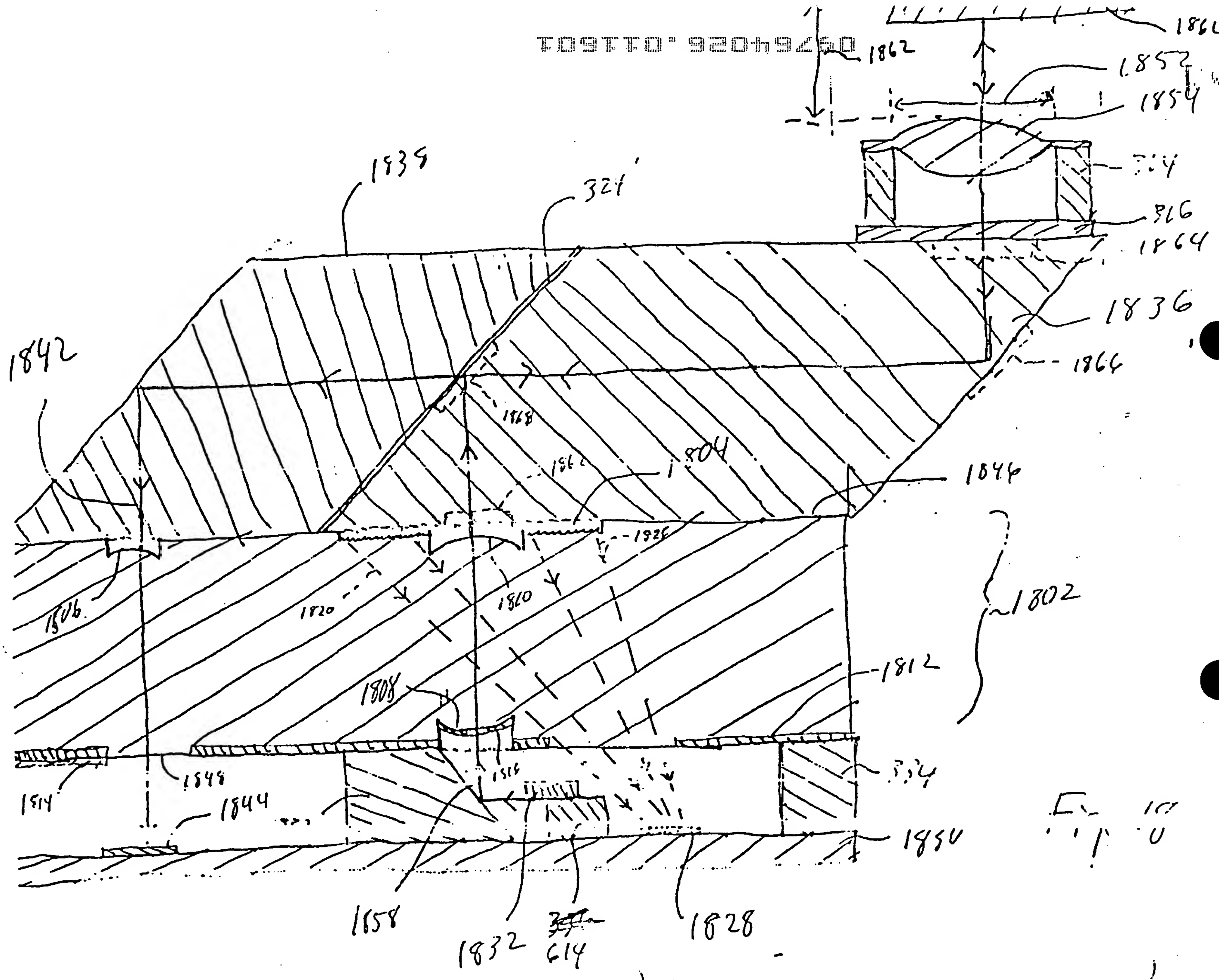


Fig. 17



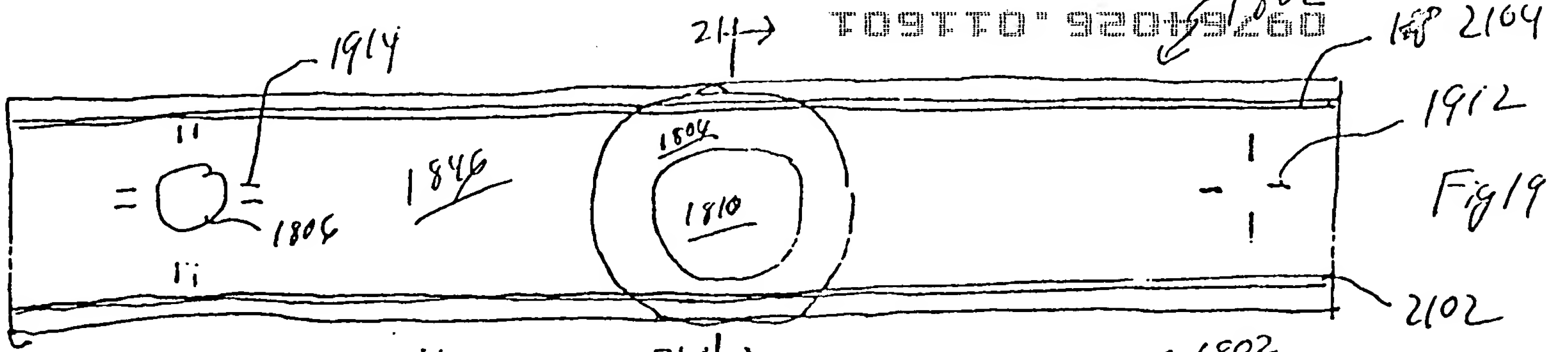


Fig 19

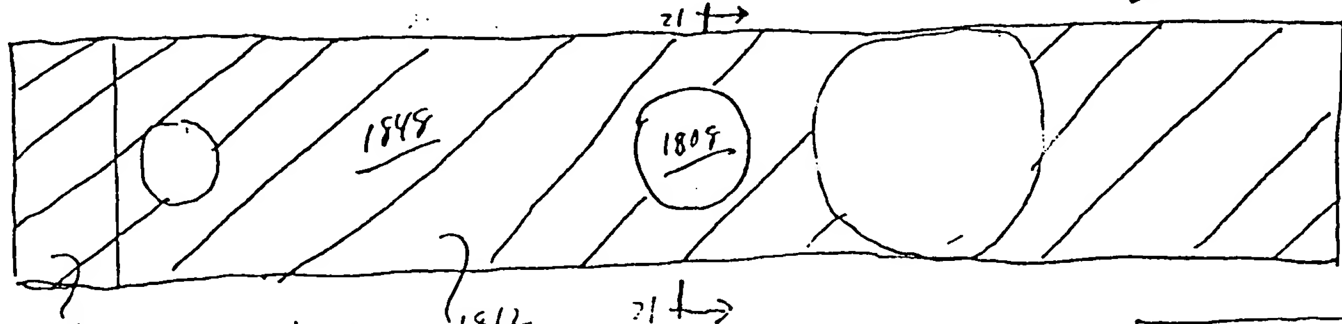


Fig 20

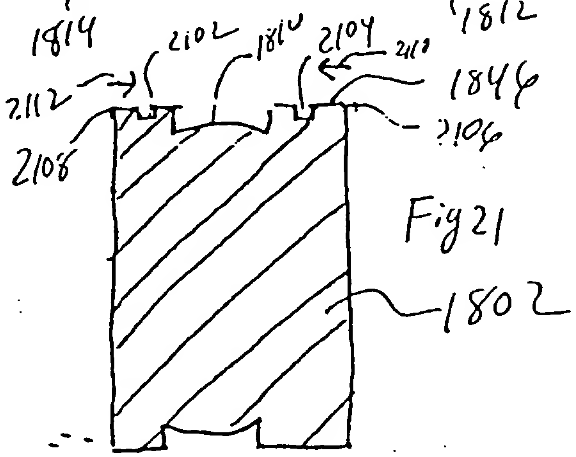


Fig 21

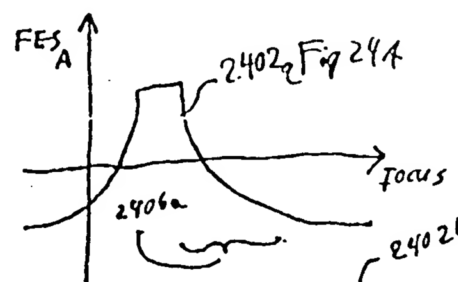


Fig 24A

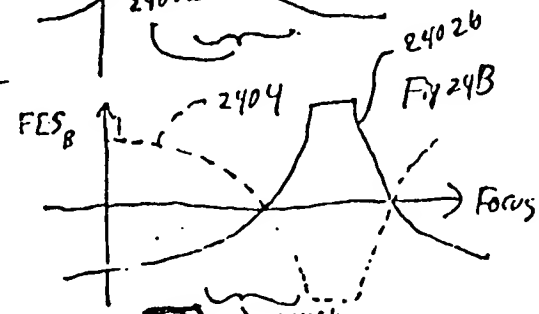


Fig 24B

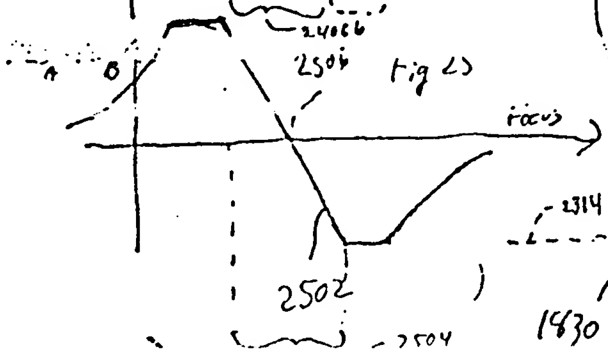


Fig 25

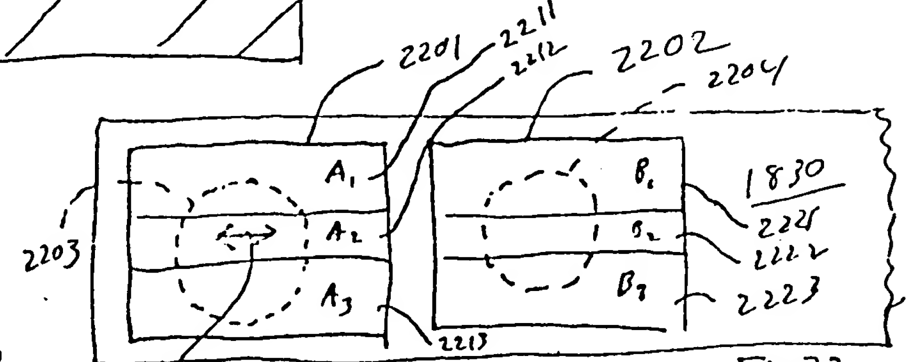


Fig 22

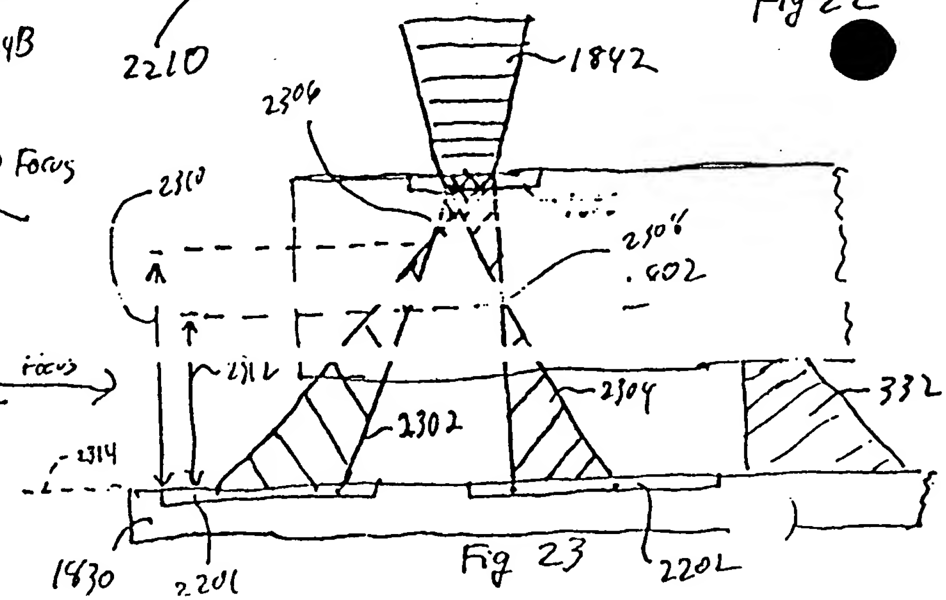


Fig 23

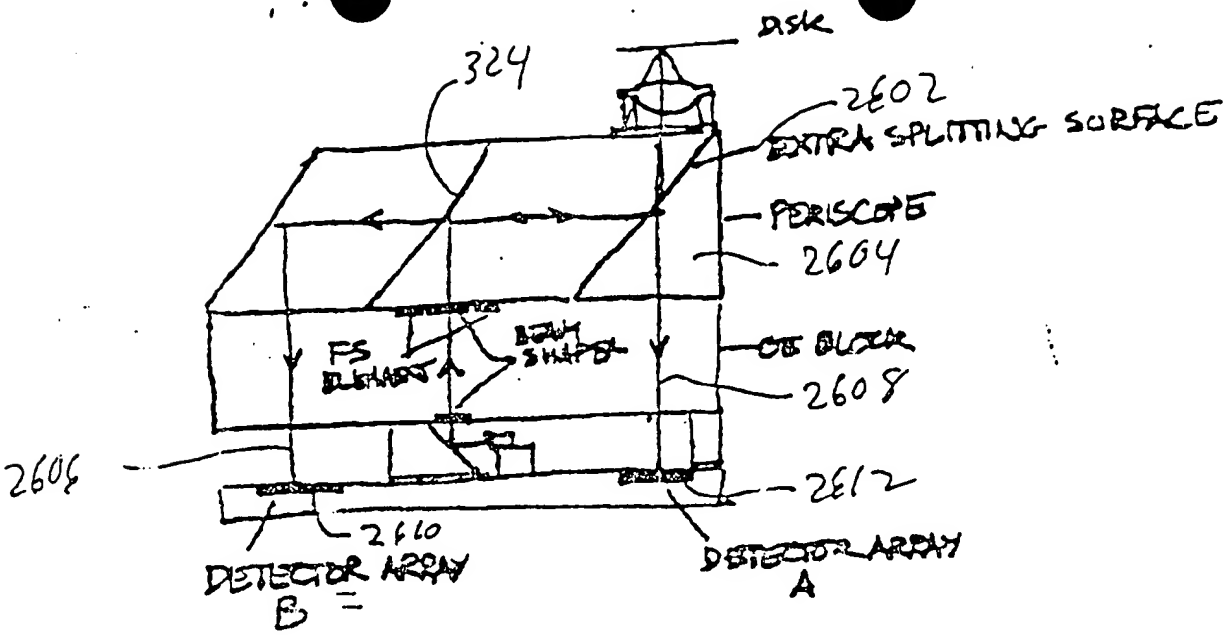


FIG. 26 IMPROVED LAYOUT, REQUIRING NO SCB.

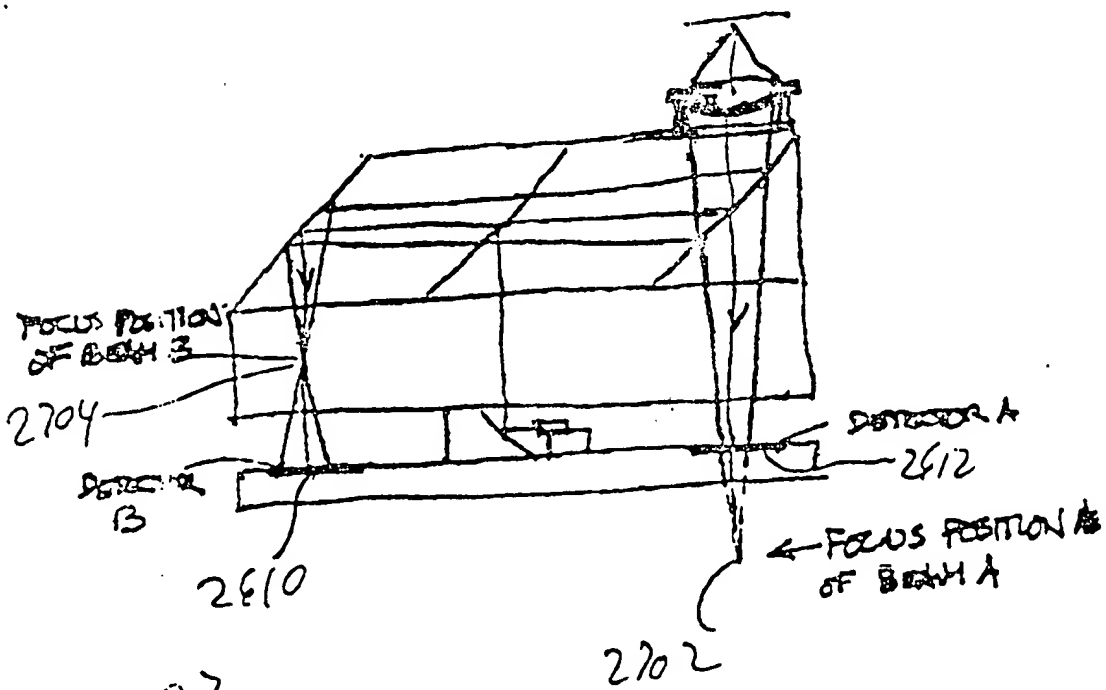


FIG. 27 IMPROVED LAYOUT, SHOWING BEAMS IN A DIFFERENTIAL SPOT SIZE MEASUREMENT FOCUS SENSING SCHEME.

Fig 28A

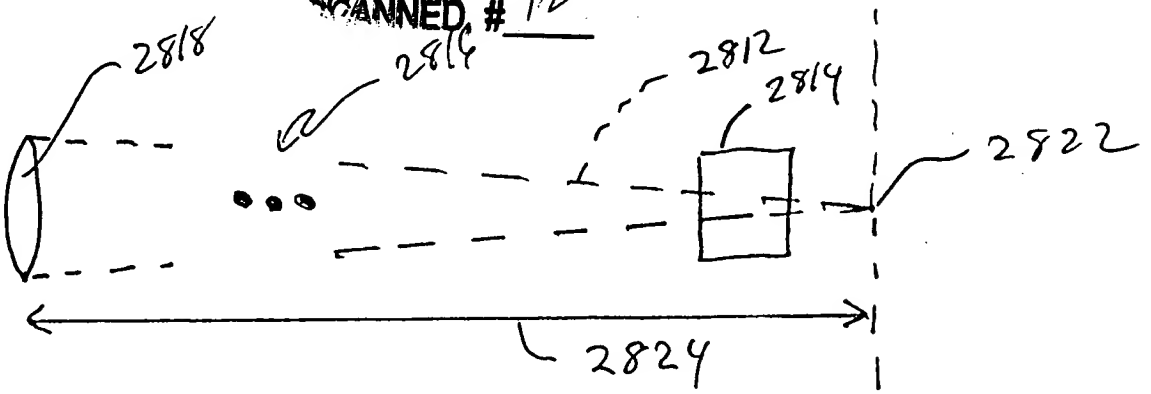


Fig 28B

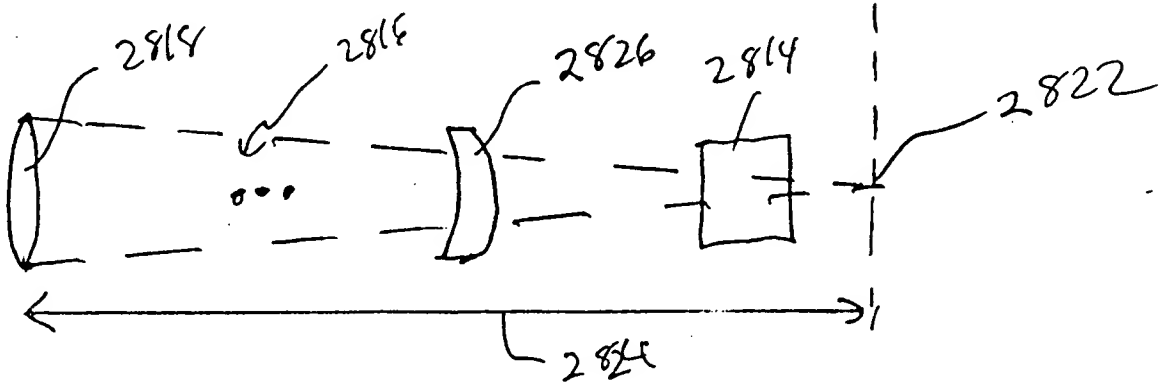
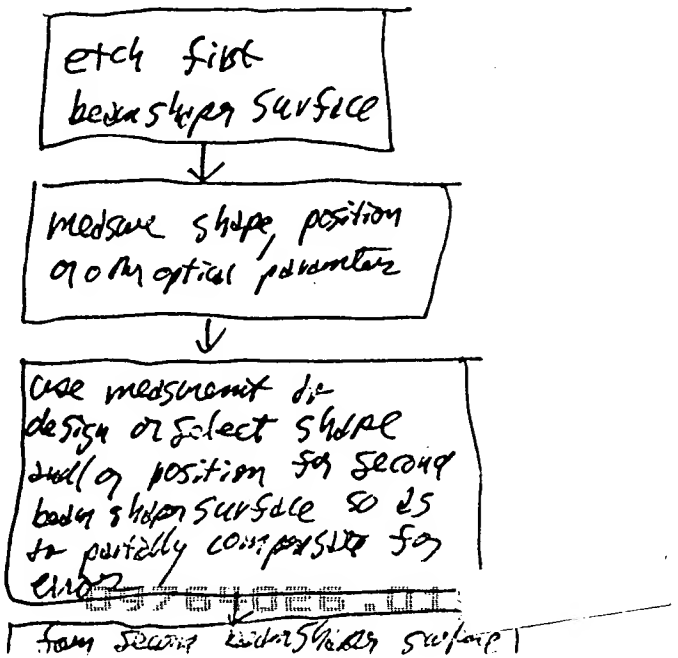


Fig 29



BEAM SHAPER EQUATION

SURFACE 1

$C_{20} := -0.39159485$

$C_{02} := 1.93044042$

$C_{40} := 0.33426195$

$C_{22} := -10.209495$

$C_{04} := -6.7032532$

$$Sag(X,Y) := C_{20} \cdot X^2 + C_{02} \cdot Y^2 + C_{40} \cdot X^4 + C_{22} \cdot X^2 \cdot Y^2 + C_{04} \cdot Y^4$$

$Y := 0, 0.01 .. 0.086$

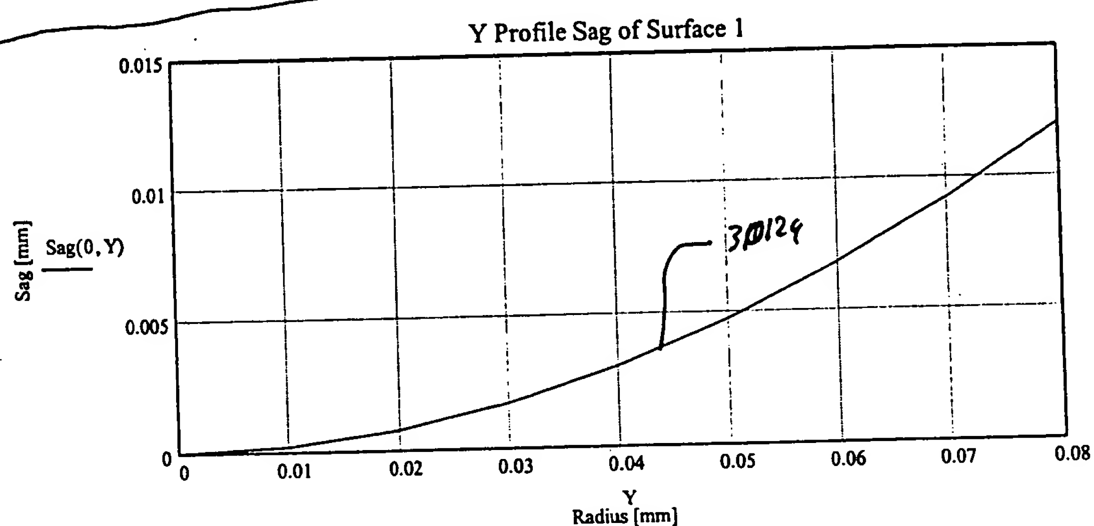


Fig 30A

$X := 0, 0.01 .. 0.086$

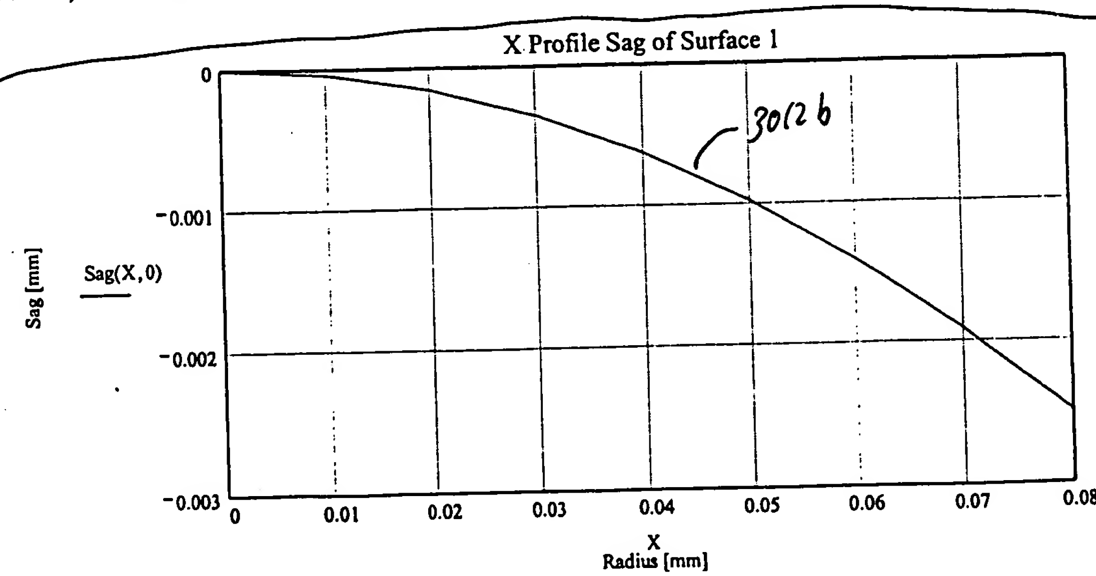


Fig. 30B

SURFACE 2

$C_{20} := -0.052783359$

$C_{02} := 0.63270121$

$C_{40} := 0.034762591$

$C_{22} := -0.91998271$

$C_{04} := 1.7905847$

$$Sag(X,Y) := C_{20} \cdot X^2 + C_{02} \cdot Y^2 + C_{40} \cdot X^4 + C_{22} \cdot X^2 \cdot Y^2 + C_{04} \cdot Y^4$$

$Y := 0, 0.01 .. 0.130$

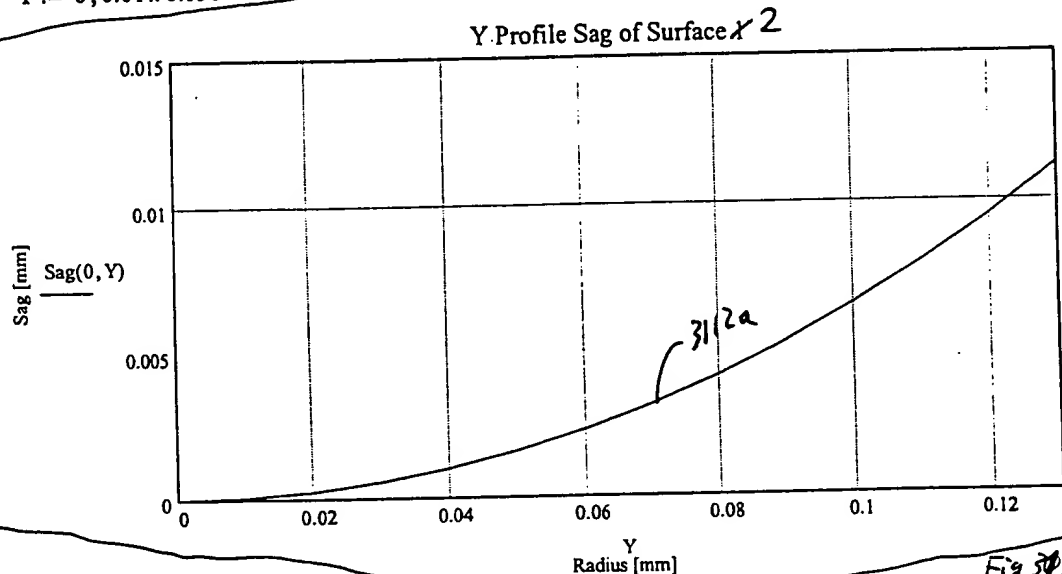


Fig 3∅A

$X := 0, 0.01 .. 0.130$

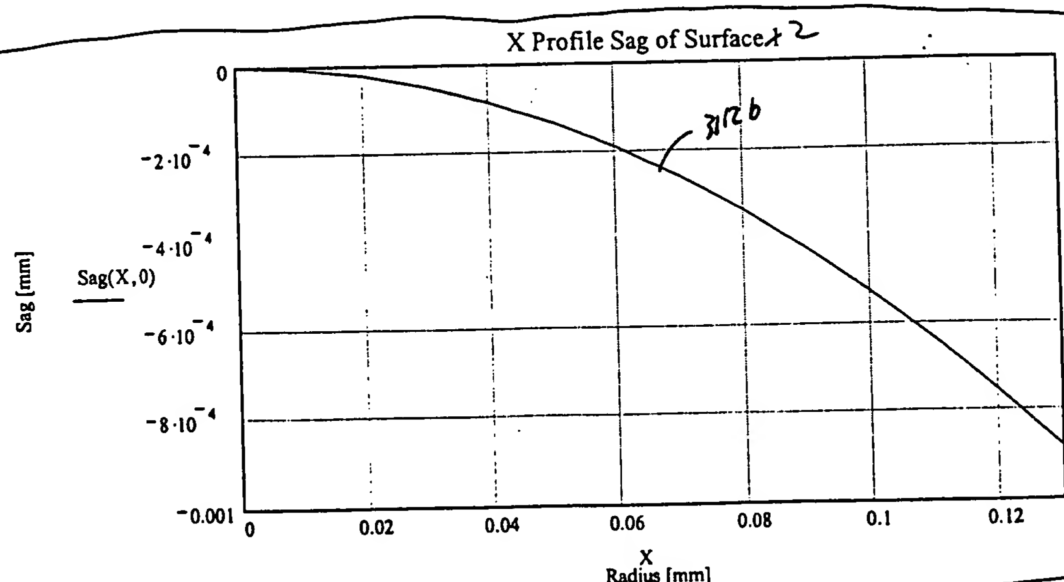


Fig 3∅B

Example of Compensating error in the 1st surface by change in the 2nd surface

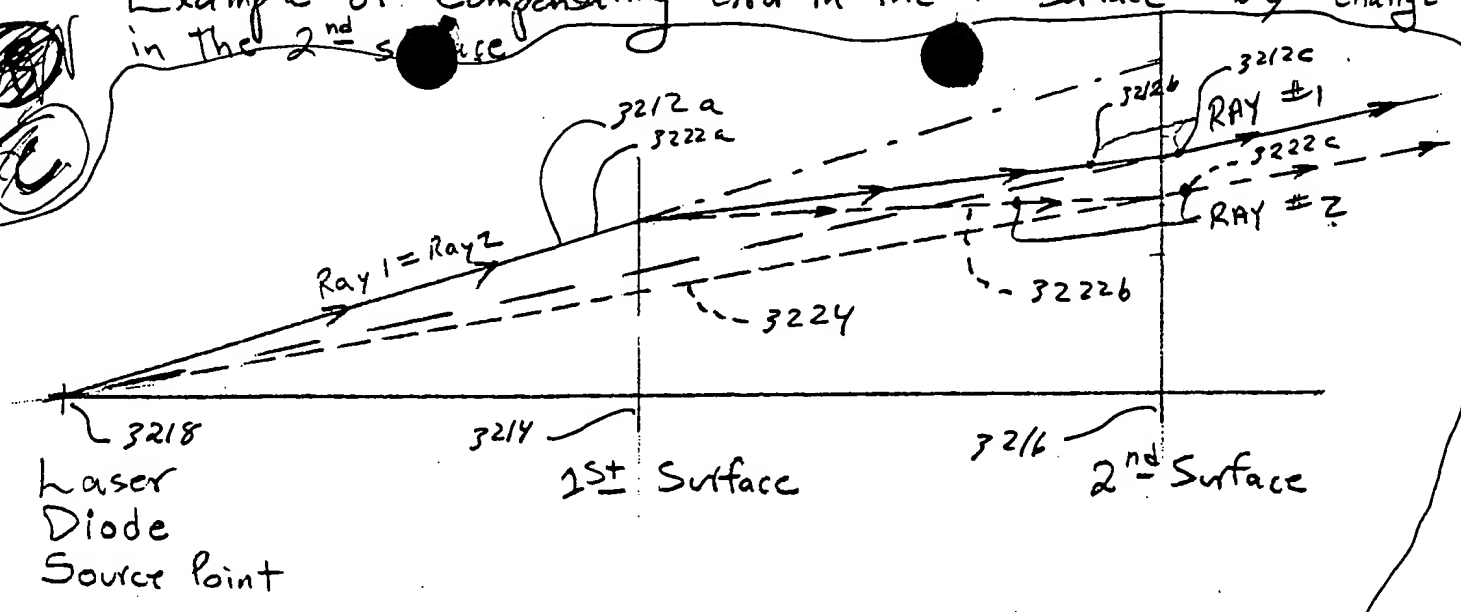


Fig 32

RAY #1 : Perfect Refraction at 1st Surface
Perfect Refraction at 2nd Surface
Source point unchanged

RAY #2 : Imperfect Refraction at 1st Surface.
Ray 2 deviates more than Ray 1.

Compensate with imperfect refraction at 2nd Surface. Ray 2 deviated such that the

Source point is unchanged